**C++: Structures and Unions**

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*Productions -*

struct\_declaration -> struct identifier { member\_list } ;

member\_list -> member\_declaration

| member\_list member\_declaration

member\_declaration -> static type identifier = expression ; | const type identifier =expression ; | type identifier =expression ; | function\_declaration | union\_declaration | struct\_declaration

union\_declaration -> union identifier { member\_list };

type -> int

| float

| char

| double

| bool

function\_declaration -> type identifier ( parameter\_list ) { statements }

parameter\_list -> parameter | parameter\_list , parameter

parameter -> type identifier

statements -> statement | statements statement

statement -> expression ;

| if\_statement

| while\_statement

| return\_statement

| block

if\_statement -> if ( condition ) statement else statement

while\_statement -> while ( condition ) statement

return\_statement -> return expression ;

block -> { statements }

condition -> expression relational\_operator expression

relational\_operator -> == | != | < | > | <= | >=

expression -> term | expression + term | expression - term | epsilon

term -> factor | term \* factor | term / factor

factor -> identifier

| constant

| ( expression )

constant -> integer\_constant

| float\_constant

| char\_constant

| string\_constant

integer\_constant -> digit+

| - digit+

float\_constant -> digit+ . digit+

| - digit+ . digit+

char\_constant -> character ss

string\_constant -> “ string\_characters “

string\_characters -> string\_character+

| string\_characters string\_character

string\_character -> printable\_character | escape\_sequence

printable\_character -> any printable ASCII character except \ or \\

escape\_sequence -> \\ character

identifier -> letter identifier\_tail

identifier\_tail -> letter | digit | \_

letter -> a | b | c | ... | z | A | B | ... | Z

digit -> 0 | 1 | 2 | ... | 9

character -> n | t | v